CLAIMS

I claim:

1. A thermic module for a self-heating container, wherein said container includes a bottom end with a cavity having internal walls formed therein for receiving said thermic module, said thermic module further comprising:

   a. a first cup having plastic walls and containing a first chemical reactant;

   b. a second cup containing a second chemical reactant;

   c. a dividing wall positioned between said first and second cups such that said first and second chemical reactants cannot mix;

   d. an end cap positioned below said second cup and retaining said second chemical reactant within said second cup;

   e. an actuator for puncturing said dividing wall positioned between said end cap and said dividing wall; and

   f. wherein said walls of said first cup are formed of a plastic of sufficient thinness and have a sufficiently low Vicat Softening Point such that said plastic walls expand into contact with said internal walls of said cavity upon mixing of said first and second chemicals.

2. The thermic module of claim 1, wherein said Vicat Softening Point is between about 120 °C and about 60 °C.

3. The thermic module of claim 2, wherein said Vicat Softening Point is between about 90 °C and about 60 °C.

4. The thermic module of claim 1, wherein said actuator comprises a piercing point, a sharper cutting edge extending laterally from said piercing point, and a blunter spreading edge extending laterally from said piercing point.

5. The thermic module of claim 1, wherein said actuator has a plurality of cutting edges and a plurality of spreading edges.

6. The thermic module of claim 1, wherein said walls of said first cup have a thickness of between about 0.001 and 0.3 mm.

7. The thermic module of claim 6, wherein said walls of said first cup have a thickness of between about 0.05 and 0.3 mm.

8. The thermic module of claim 7, wherein said walls of said first cup have a thickness of between about 0.1 and 0.2 mm.

9. The thermic module of claim 1, wherein said walls of said first cup are formed at least predominantly either polystyrene or polyvinyl chloride.

10. The thermic module of claim 1, wherein said second cup includes a side wall connecting to said dividing wall and said side wall of said second cup has a thickness of at least about 0.3 mm and side dividing wall has a thickness of about 0.2 mm.

11. The thermic module of claim 9, wherein said second cup is formed of a plastic having a Vicat Softening Point of greater than about 120 °C.

12. The thermic module of claim 4, wherein said actuator is formed of a plastic having a Vicat Softening Point of greater than about 120 °C and a thickness of greater than about 0.3 mm.

13. The thermic module of claim 1, wherein side walls of said second cup are attached to said first cup and a separately formed dividing wall is positioned within said sidewalls of said

second cup.

14. The thermic module of claim 13, wherein said separately formed dividing wall includes a perforate frame structure with a separate layer of sheeting material formed thereover.

15. The thermic module of claim 14, wherein said sheeting material is aluminum foil.

16. A thermic module for a self-heating container, wherein said container includes with a bottom end with a cavity having internal walls formed therein for receiving said thermic module, said thermic module further comprising:

a. a first cup containing a first chemical reactant, said first cup being formed of a frame structure having a top and a side window and a sheeting material covering said windows;

b. a second cup containing a second chemical reactant;

c. a dividing wall positioned between said first and second cups such that said first and second chemical reactants cannot mix;

d. an end cap positioned below said second cup and retaining said second chemical reactant within said second cup; and

e. an actuator for puncturing said dividing wall positioned between said end cap and said dividing wall.

17. The thermic module of claim 16, wherein said sheeting material is aluminum foil.

18. The thermic module of claim 17, wherein said foil is attached to said frame with an adhesive.

19. A self-heating container, wherein said container includes with a bottom end with a cavity having internal walls formed therein for receiving a thermic module, said thermic module further comprising:

a. a first chemical reactant positioned in said cavity;

b. a cup containing a second chemical reactant;

c. a dividing wall positioned between said first and second reactants such that said reactants are not in contact;

d. an end cap positioned below said cup and retaining said second chemical reactant within said cup;

e. an actuator for puncturing said dividing wall, said actuator positioned to be activated by pressure on said end cap; and

f. a pressure activated vent used in combination with said container such that a pressure created by the mixing of said first and second reactants must exceed about 2 psi before said vent is activated.

20. The self-heating container of claim 19, wherein said vent is activated by a pressure of between about 4 and about 7 psi.

21. The self-heating container of claim 19, wherein said vent is positioned between said end cap and a bottom wall of said container.

22. The self-heating container of claim 21, wherein said vent is formed within said end cap.

23. The self-heating container of claim 19, wherein said first chemical reactant is positioned within a cup inside said cavity.

24. The self-heating container of claim 23, wherein said cup is formed of aluminum having a wall thickness of between about 0.05mm and 0.1mm.

25. The self-heating container of claim 19, wherein the ratio by weight of a solid reactant to a liquid reactant is between about 0.2 and 0.5.

26. The self-heating container of claim 25, wherein the ratio by weight of a solid reactant to a liquid reactant is between about 0.3 and 0.4.

27. The self-heating container of claim 26, wherein the ratio by weight of a solid reactant to a liquid reactant is between about 0.36.

28. A method of assembling a self-heating container comprising the steps of:

a. providing a container which includes an enclosed space for a food or beverage, a sealable top end on said enclosed space, and a bottom end with a thermic module cavity having internal walls extending toward said top end;

b. filling said enclosed space with a food or beverage and sealing said top end;

c. sterilizing said sealed container;

d. providing a thermic module which includes an outer module wall and two reactants separated by an internal breakable barrier wall; and

e. after said sterilization step, securing in said thermic module in said cavity.

29. The method according to claim 28, wherein said step of providing said thermic module includes providing a thermic module which is capable of heating said food or beverage at least 40 °C in about 180 seconds.

30. The method according to claim 28, wherein said step of providing said thermic module includes providing a thermic module wherein said outside walls are constructed of plastic.